

CLAIMS

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is as follows:

- 1 1. A systematic modeling methodology for information personalization in
 2 an information system which automatically adjusts information content,
 3 structure, and presentation to an individual user comprising the steps of:
 4 modeling information-seeking interaction sequences with the
 5 information system wherein each interaction sequence denotes a possible
 6 dialog between the user and the information system;
 7 programmatically representing the interaction sequences in a
 8 computer program;
 9 creating a personalization system by partial evaluation of the
 10 computer program to produce a simplified program; and
 11 generating a personalized information space for the user in a user
 12 interface from the simplified program.

- 1 2. The systematic modeling methodology for information personalization in
 2 an information system recited in claim 1, wherein a dialog in the step of
 3 modeling is a task-oriented information-seeking activity involving a list of
 4 information-seeking aspects comprising structural aspects specified by the
 5 user and terminal aspects as responses by the information system to the
 6 specified structural aspects.

- 1 3. The systematic modeling methodology for information personalization in
 2 an information system recited in claim 2, wherein the step of generating a
 3 computer program comprises the steps of:
 4 defining a program variable for each structural aspect, called
 5 structural variables;

6 defining a program variable for each terminal aspect, called terminal
7 variables;

8 organizing the set of interaction sequences in terms of conditional
9 elements on structural variables, using constructs provided in a
10 programming language;

11 declaring all structural variables to be parameters in the program;
12 and

13 if an interaction sequence produces values for terminal aspects,
14 assigning values for respective terminal variables in corresponding
15 programmatic representation.

1 4. The systematic modeling methodology for information personalization in
2 an information system recited in claim 1, further comprising the step of
3 compacting interaction sequences to determine a new set of interaction
4 sequences having fewer states prior to the step of programmatically
5 representing the interaction sequences in a computer program.

1 5. The systematic modeling methodology for information personalization in
2 an information system recited in claim 1, wherein the step of creating a
3 personalization system by partial evaluation of the computer program uses
4 a source-to-source transformation engine that simplifies the computer
5 program for static values of some program variables.

1 6. The systematic modeling methodology for information personalization in
2 an information system recited in claim 1, wherein the step of generating a
3 personalized information space for the user in a user interface is performed
4 by mapping from the simplified program to the information space, in terms
5 of a technology corresponding to the information system.

1 7. The systematic modeling methodology for information personalization in
2 an information system recited in claim 6, wherein the information-seeking
3 interaction of the user is by means of a browser.

1 8. The systematic modeling methodology for information personalization in
2 an information system recited in claim 7, wherein the user interface is a
3 browser window displaying an information space and a partial input
4 specification window for facilitating user interaction.

1 9. The systematic modeling methodology for information personalization in
2 an information system recited in claim 7, wherein the browser supports a
3 browsing hierarchy, said step of modeling being performed using a nested
4 programmatic model.

1 10. The systematic modeling methodology for information personalization
2 in an information system recited in claim 7, wherein the user interface
3 comprises two windows, a first window allowing the user to proceed with
4 an interaction along lines initiated by the information system and a second
5 window allowing the user to take an initiative and personalize the
6 interaction by specifying some aspect out-of-turn.

1 11. The systematic modeling methodology for information personalization
2 in an information system recited in claim 1, wherein the user can specify
3 any aspect out-of-turn, further comprising the step of partially evaluating
4 the program with respect to values for structural program variables.

1 12. The systematic modeling methodology for information personalization
2 in an information system recited in claim 7, further comprising the steps of:
3 when a user specifies information-seeking aspects, representing the
4 information-seeking aspects as values for structural program variables;

- 5 performing a partial evaluation with respect to the structural
6 program variables; and
7 converting a resulting program back to the information space.

[illegible]